PULSE CROP ECONOMICS

COMPARISON TO OTHER CROPS

& ROTATION ECONOMICS

February 16, 2010

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PULSE CROP ECONOMICS

Approach: Comparison of Returns After Direct Costs

Why compare returns after direct costs?

- Majority of indirect costs are fixed costs *(within relevant ranges of scale)* & are sunk regardless of the crop produced.
  - Equipment
  - Labor
  - Land ownership / cash rent *(direct, but not dependent upon crop)*

- In general - very little difference in fixed / indirect costs between crops

PULSE CROP ECONOMICS

Approach: Comparison of Returns After Direct Costs

Revenue – Value of Crop

- **Government payments assumed not to change with crop selection**

Direct Costs:

- **Seed**
- **Herbicides**
- **Fungicides**
- **Insecticides**
- **Fertilizer – replacement of NPK & S for yield harvested**
- **Crop Insurance**
- **Fuel & Lubrication for Field Operations**
- **Trucking from Farm to Delivery Point**
- **Operating Interest**
- **N Credit for Peas & Lentils – value of 10 lbs N / acre**

PULSE CROP ECONOMICS

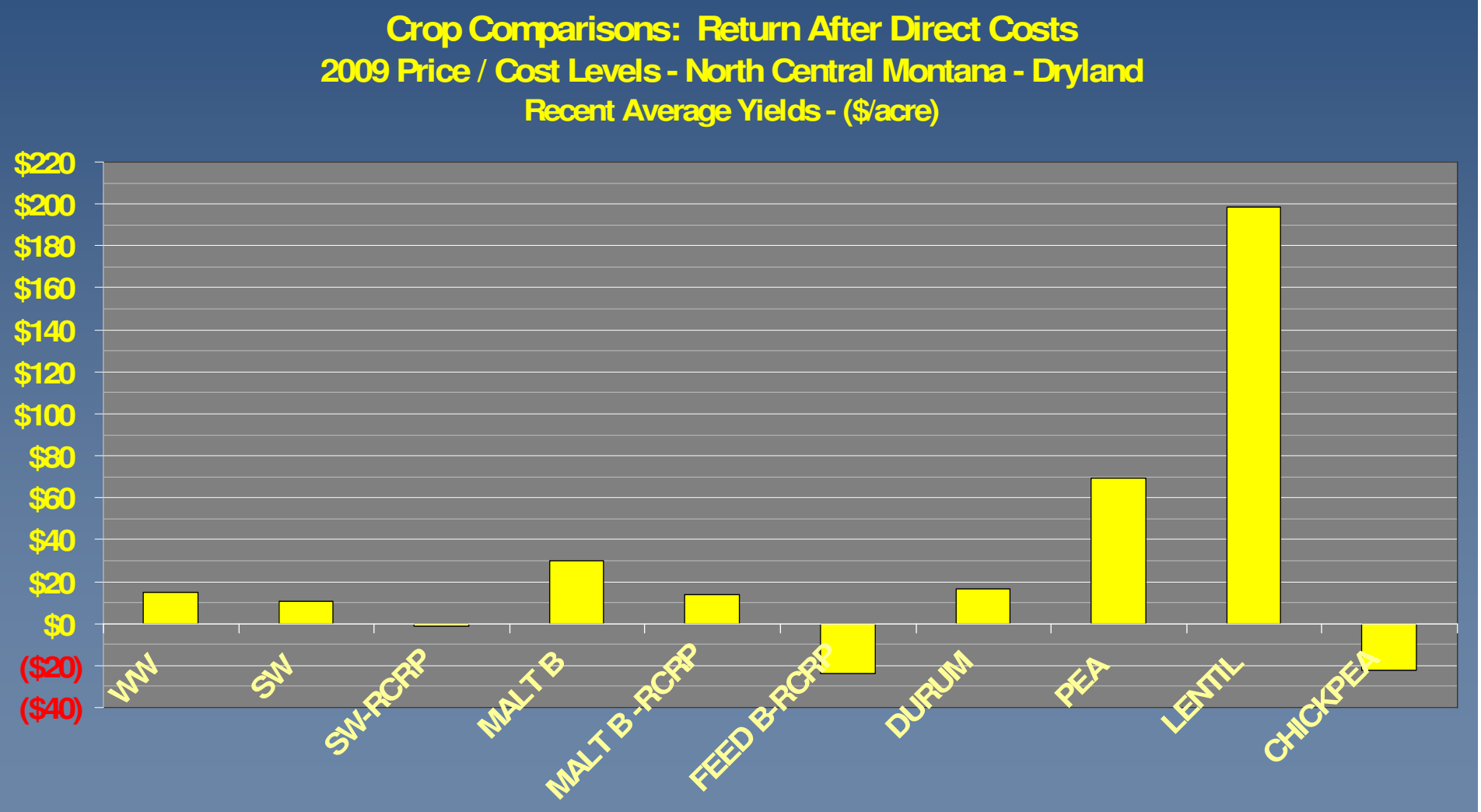
DRYLAND PRODUCTION

REGIONAL DRYLAND AVERAGE YIELDS: (2004 - 2008)

	Low	Ave	High
WW (bu/acre)	39.2	43.8	47.2
SW (bu/acre)	19.3	27.4	35.0
SW-Recrop (bu/acre)	15.0	22.0	26.0
Barley (bu/acre)	33.0	46.4	57.0
Barley-Recrop (bu/acre)	23.0	35.8	45.0
Durum (bu/acre)	27.0	32.9	38.0
Durum-Recrop (bu/acre)	12.0	22.7	30.0
Pea (bu/acre)	16.5	27.0	42.7
Lentil (lb/acre)	690	1,018	1,480
Chickpea* (lb/acre)	450	682	890

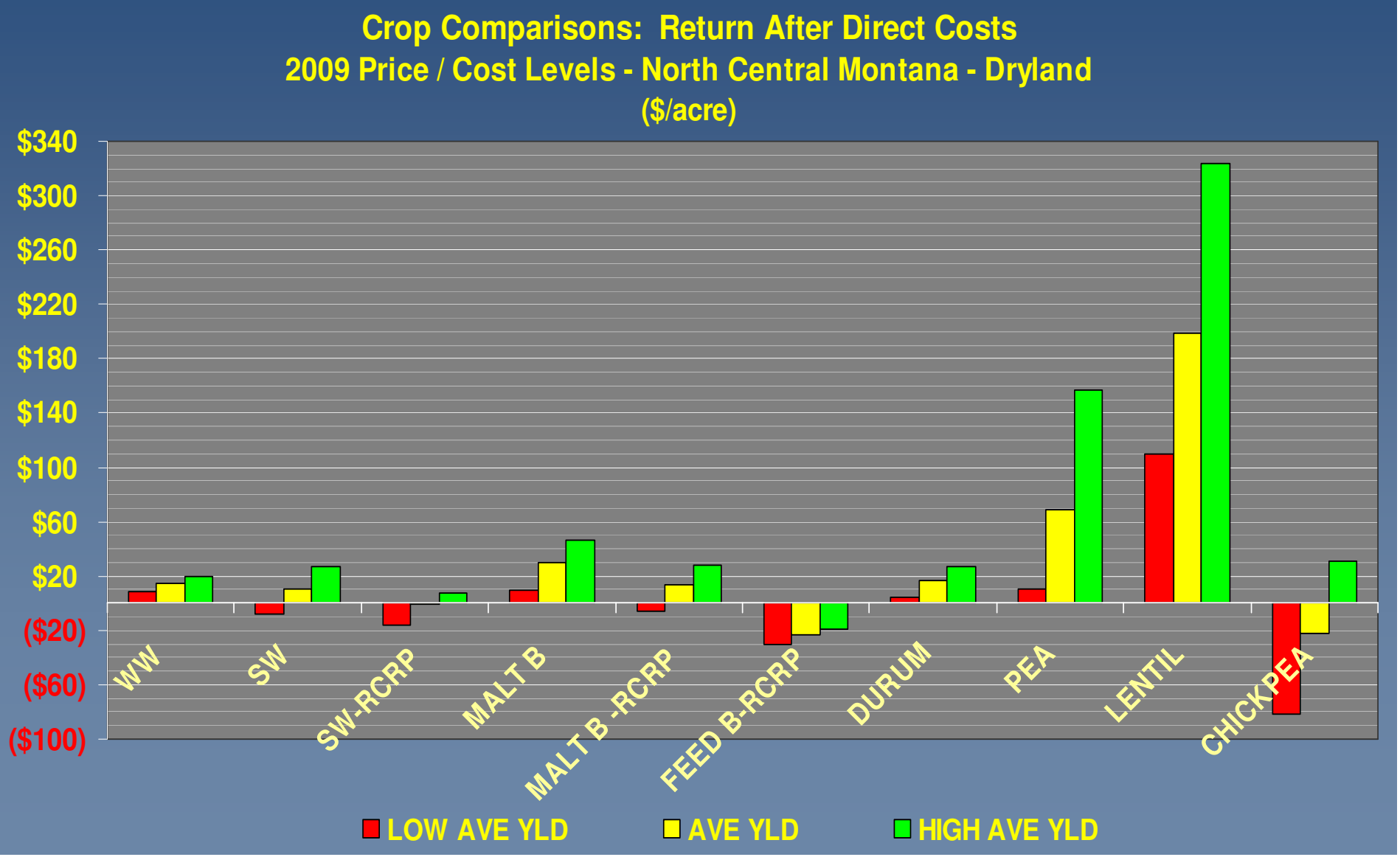
PULSE CROP ECONOMICS

CROP COMPARISONS – 2009 (Regional Average Yields 2004 – 2008)



PULSE CROP ECONOMICS

CROP COMPARISONS - 2009



CURRENT PRICES (converted to US Dollars - from www.statpub.com & USDA *2/10/2010*)

Winter Wheat (Ordinary)	$3.80 / bu	
Spring Wheat (14%)	$5.76 / bu	
Malt Barley	$3.12 / bu	$6.50 / cwt
Feed Barley	$2.40 / bu	$5.00 / cwt
Durum	$4.25 / bu	
Peas		
Green No. 1	$7.13 / bu	$11.88 / cwt
Med. Yellow No. 1	$4.61 / bu	$7.68 / cwt
Feed Grade	$3.43 / bu	$5.72 / cwt
Lentil		
Large Green (Laird) No. 1	$32.53 / cwt	
Med. Green (Richlea) No. 1	$28.32 / cwt	
Small Green (Eston) No. 1	$27.38 / cwt	
Red No. 1	$31.24 / cwt	
Chickpea*		
Kabuli No. 1 (10 mm)	$30.26 / cwt	
Desi	$22.94 / cwt	

PULSE CROP ECONOMICS

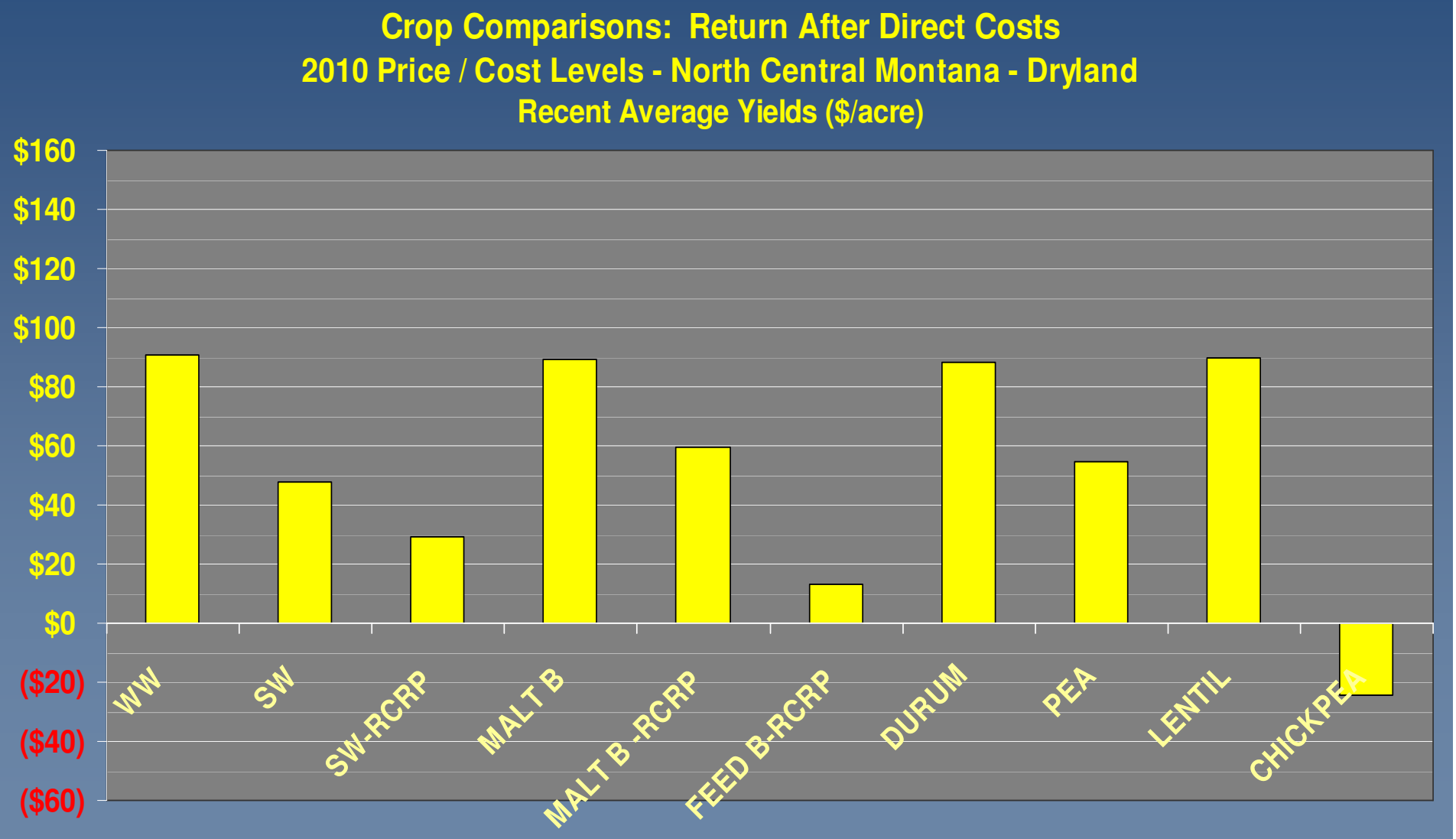
2010???

2010 PRICE ESTIMATES *(mostly NDSU's prediction for 2010)*

Winter Wheat	$4.59 / bu
Spring Wheat	$5.30 / bu
Malt Barley – AB Contract	$4.05 / bu $8.44 / cwt
Malt Barley – Open Market	$3.61 / bu $7.52 / cwt
Feed Barley	$2.31 / bu $4.81 / cwt
Durum	$5.96 / bu
Pea *(Cruiser-type)*	$6.00 / bu $10.00 / cwt
Lentil	$19.00 (Chad) $24.00 / cwt (NDSU)
Chickpea*	$27.50 (Chad) $23.00 / cwt (NDSU)

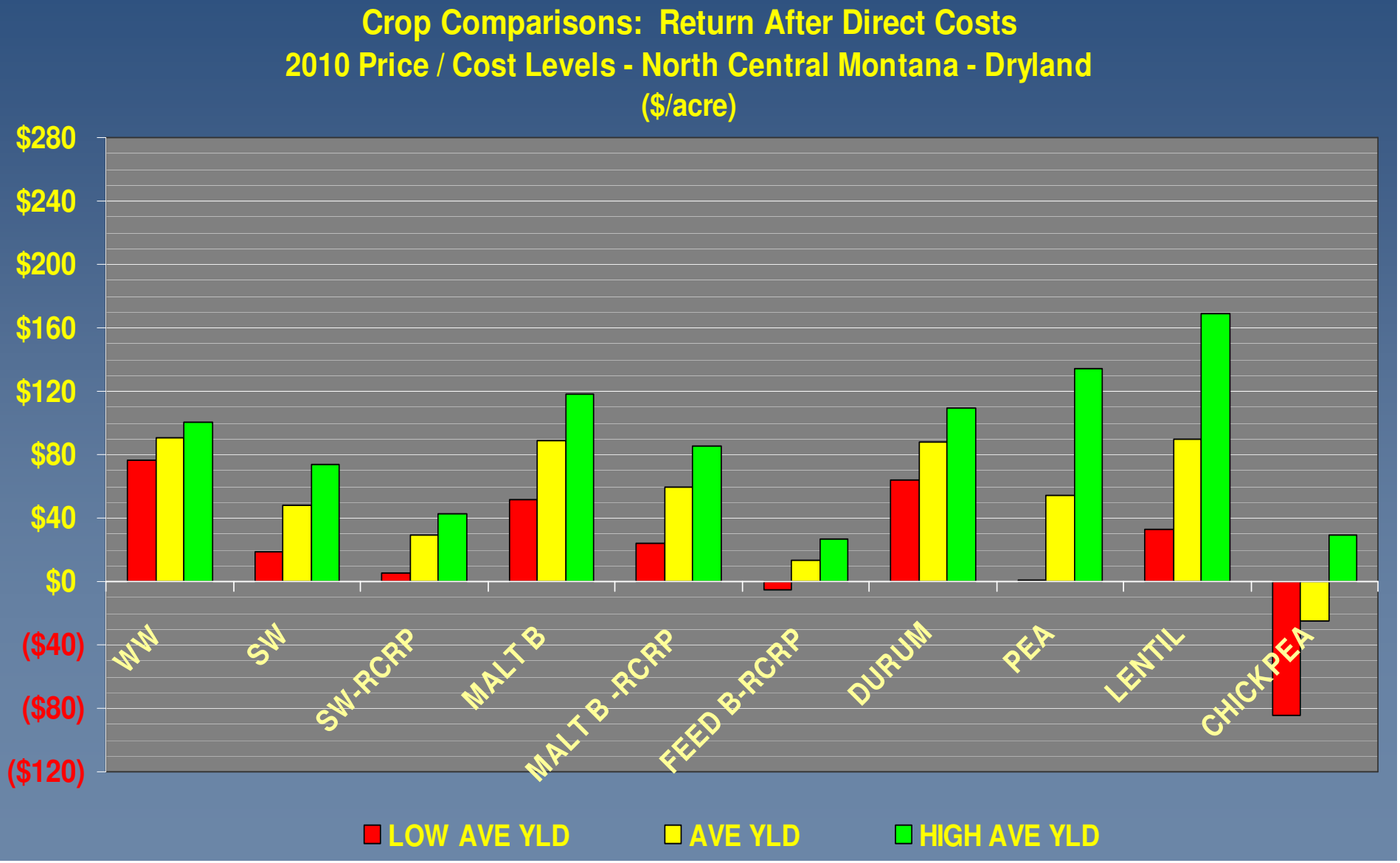
PULSE CROP ECONOMICS

CROP COMPARISONS – 2010 (Regional Average Yields 2004 – 2008)



PULSE CROP ECONOMICS

CROP COMPARISONS – 2010 (Regional Average Yields 2004 – 2008)



PULSE CROP ECONOMICS

IRRIGATED PRODUCTION

PULSE CROP ECONOMICS

CROP COMPARISONS

What about pulse crops under irrigation?

- Successful irrigated pea production has been achieved in the Valier and Fairfield areas – but production has been somewhat limited
- Irrigated lentils are currently uncommon - but potential returns appear high
  - Low water use
  - Careful water management required
- Chickpeas – disease is a concern
- Dry Beans in the Golden Triangle in the future???

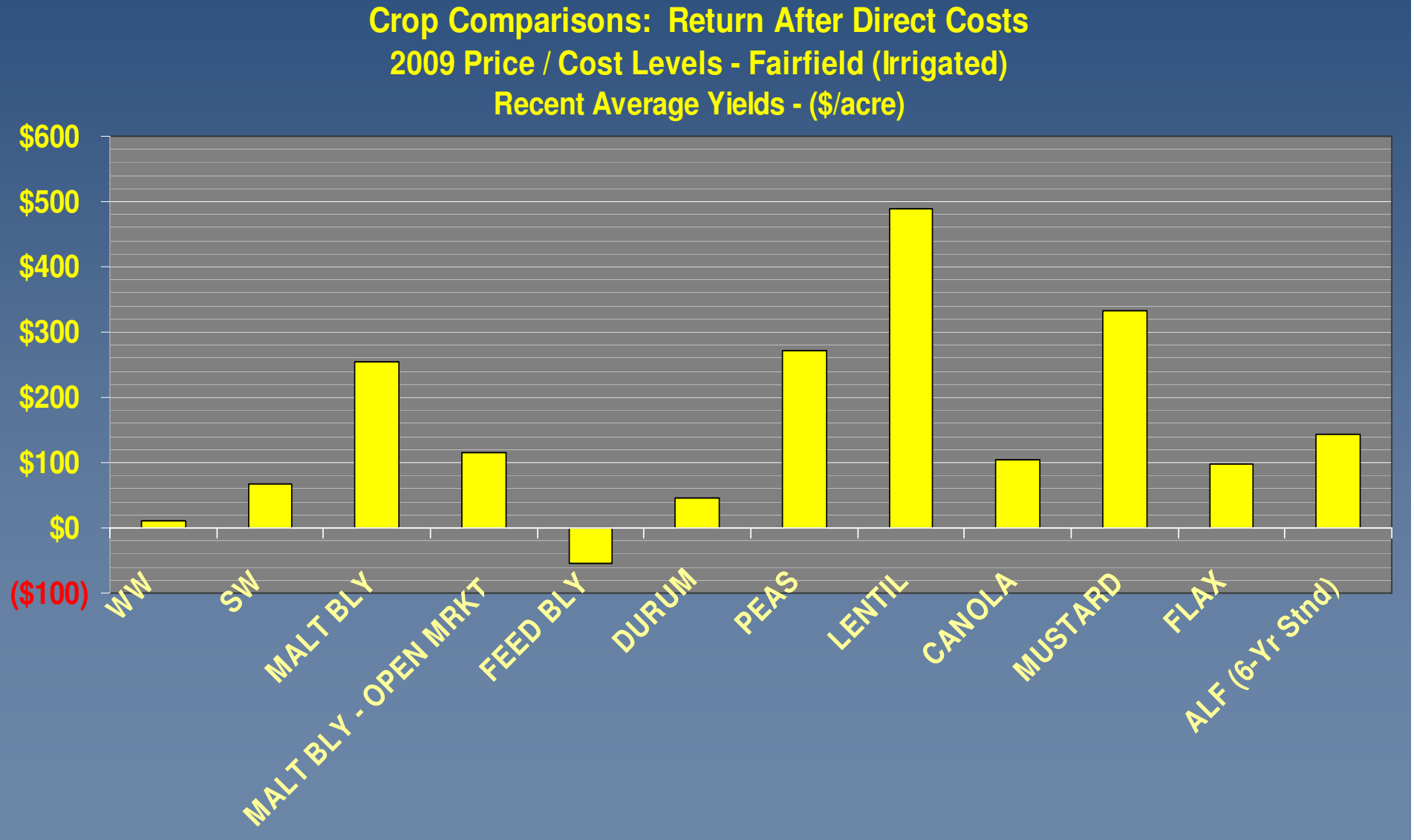
How do irrigated pulses compare to other crops?

YIELDS USED FOR FAIRFIELD MODEL:

	Low	Ave	High
WW (bu/acre)	80	95	115
SW (bu/acre)	75	85	100
Barley (bu/acre)	80	95	110
Durum (bu/acre)	70	80	95
Pea (bu/acre)	55	70	80
Lentil (lb/acre)	1,500	2,250	2,750
Canola (lb/acre)	2,250	2,625	3,200
Mustard (lb/acre)	1,500	1,800	2,250
Flax (bu/acre)	35	45	50
Alfalfa (6-Yr Ave, ton/acre)	4.00	4.42	5.00

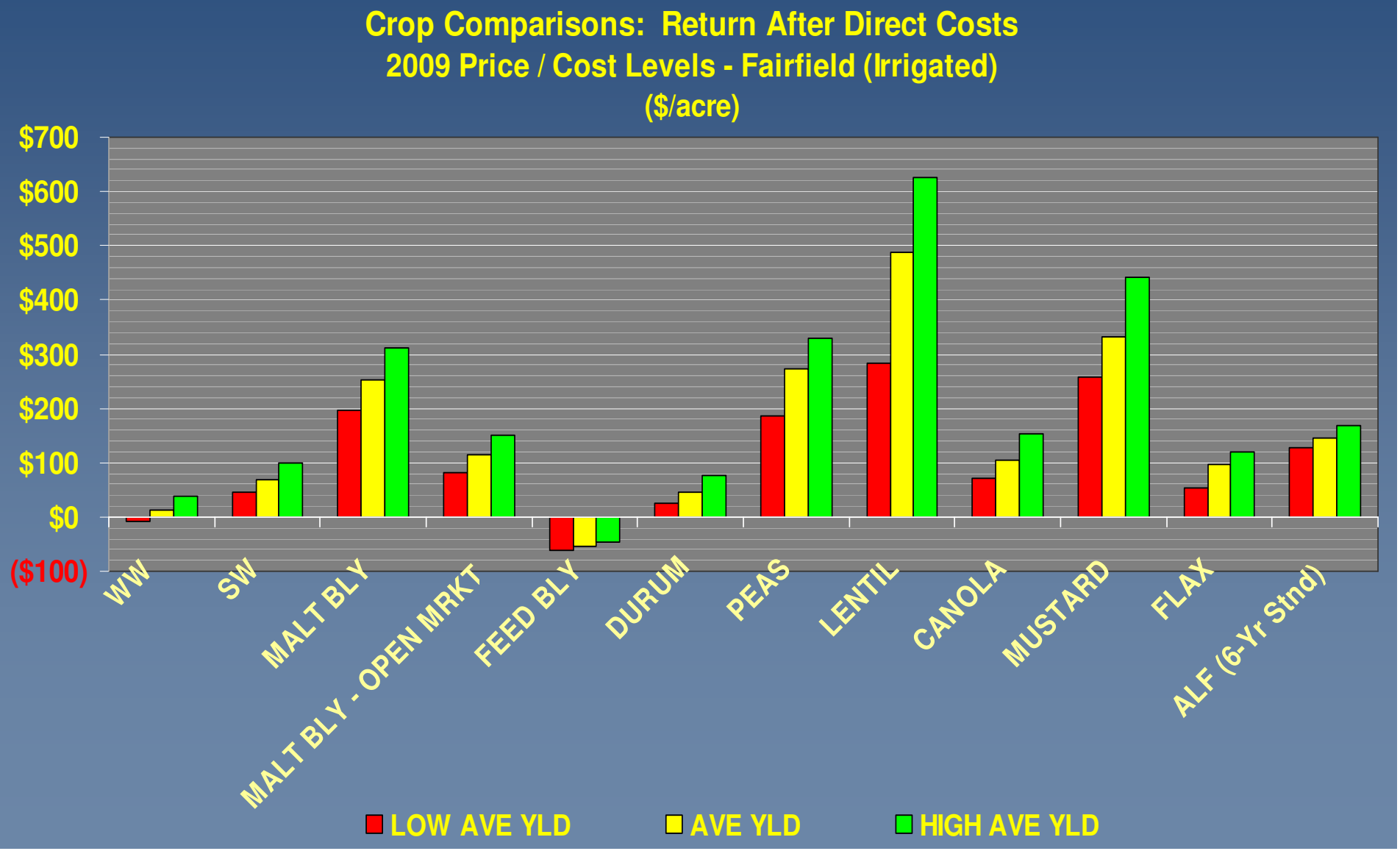
PULSE CROP ECONOMICS

IRRIGATED CROP COMPARISONS – 2009 (Fairfield area, average yields)



PULSE CROP ECONOMICS

IRRIGATED CROP COMPARISONS – 2009 (Fairfield area)

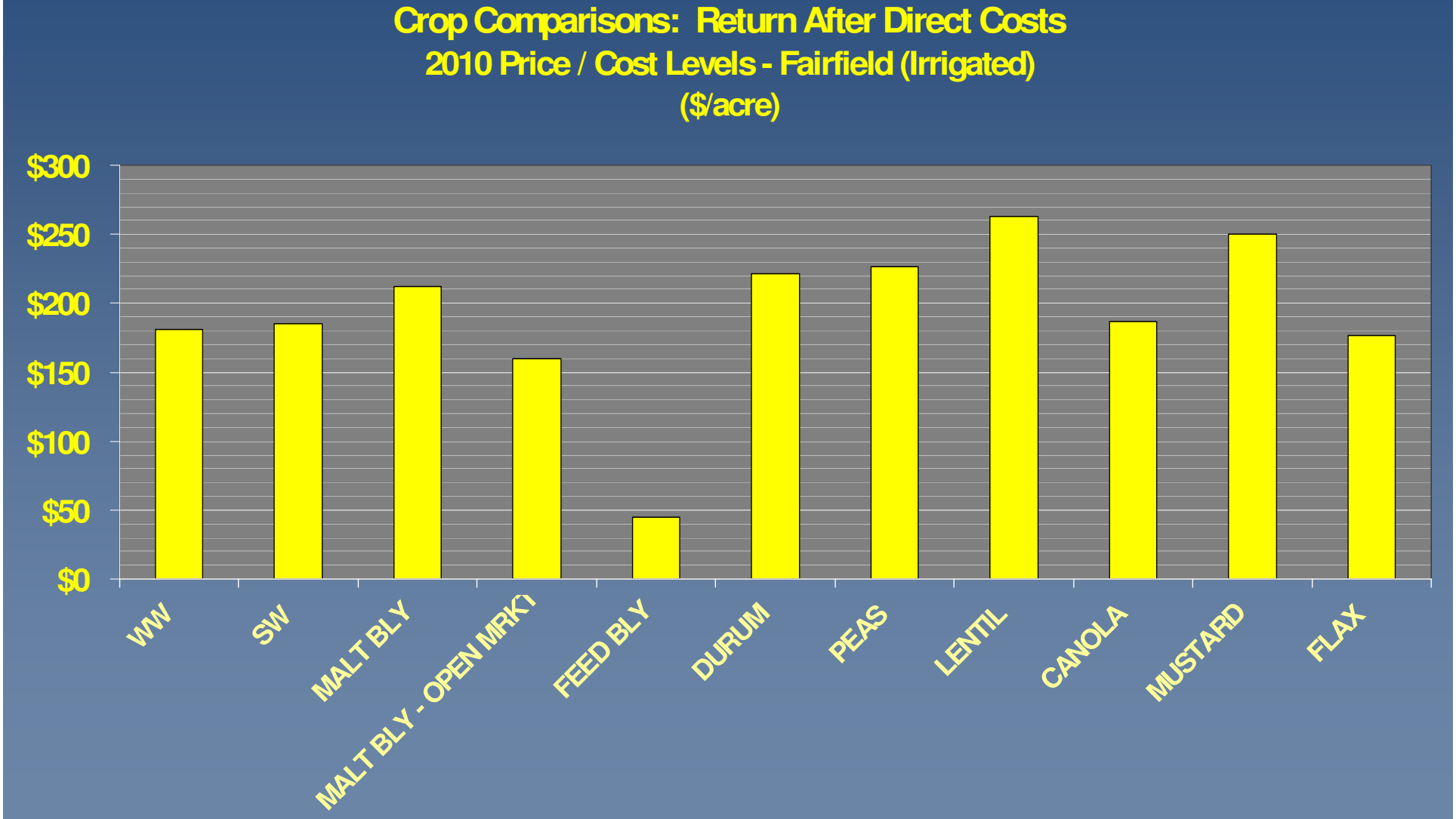


PULSE CROP ECONOMICS

2010???

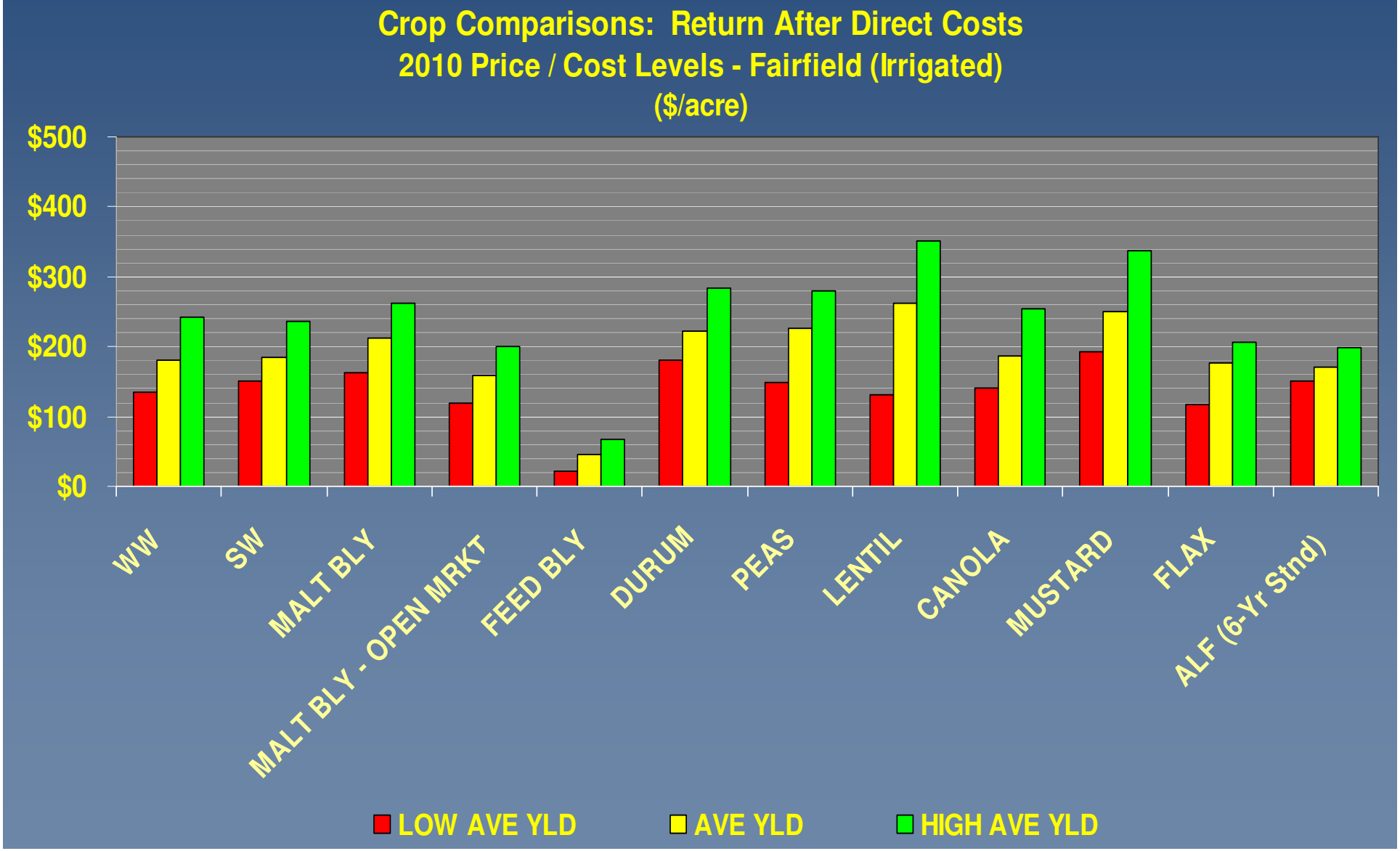
PULSE CROP ECONOMICS

IRRIGATED CROP COMPARISONS – 2010 (Fairfield area, average yields)



PULSE CROP ECONOMICS

IRRIGATED CROP COMPARISONS – 2010 (Fairfield area)



PULSE CROP ECONOMICS

ROTATION COMPARISONS

Approach: Comparison of Average Annual Returns After Direct Costs

Why compare rotations instead of individual crops?

- Average annual returns are needed for comparability

- Rotations may vary for a variety of reasons and objectives
  - Cropping Intensity
  - Moisture & Weather Conditions
  - Integrated Pest / Disease Management / Soil Building Objectives
  - Income Diversification & Risk Management Decisions
  - Government Program Requirements (CSP)
  - Carbon Credit Trading Requirements

- Comparing rotations acknowledges that there are constraints to sequences of crops

PULSE CROP ECONOMICS

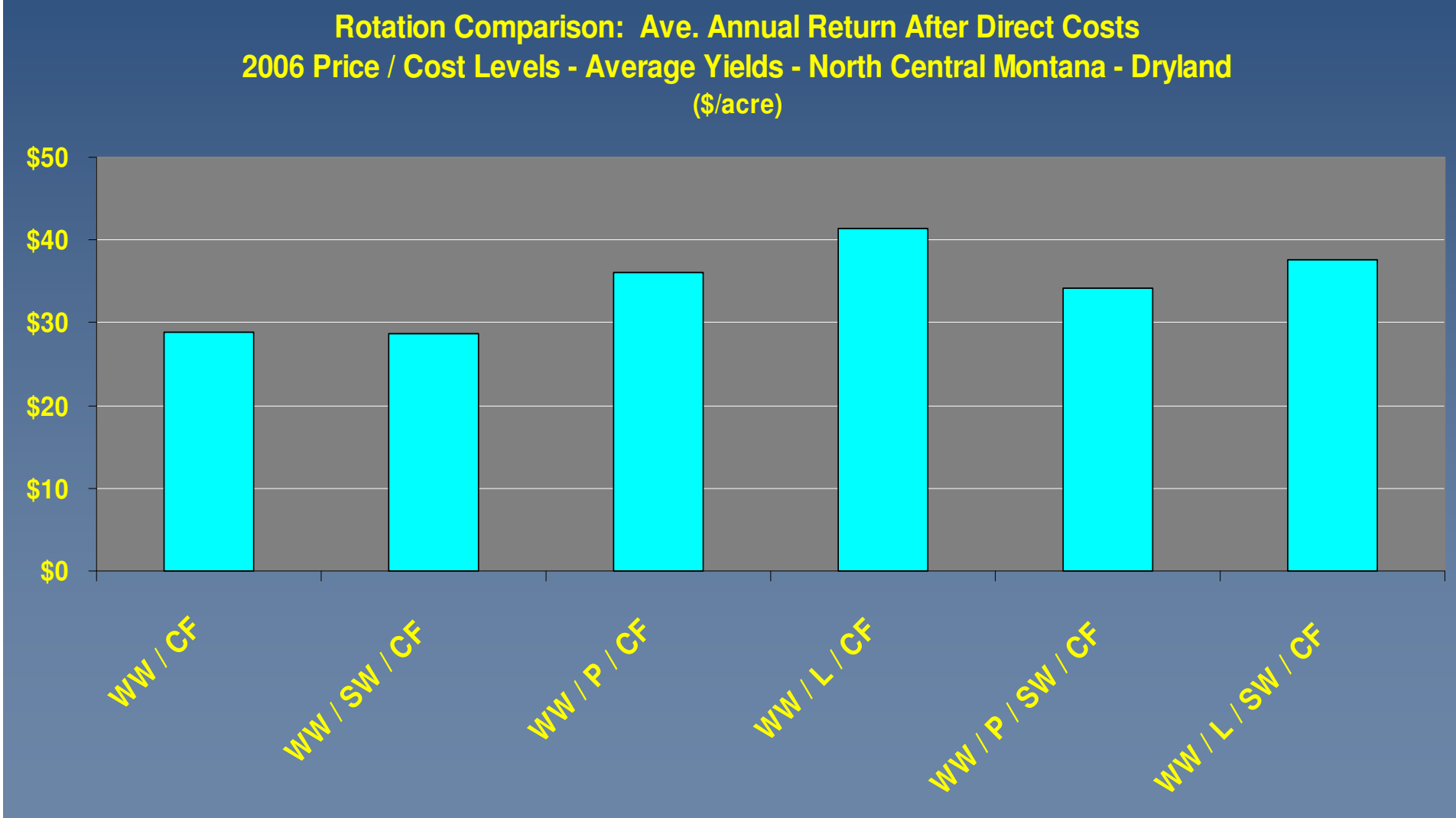
ROTATION COMPARISONS

Comparison for four different periods:

- 2006
- 2007
- 2009
- 2010

PULSE CROP ECONOMICS

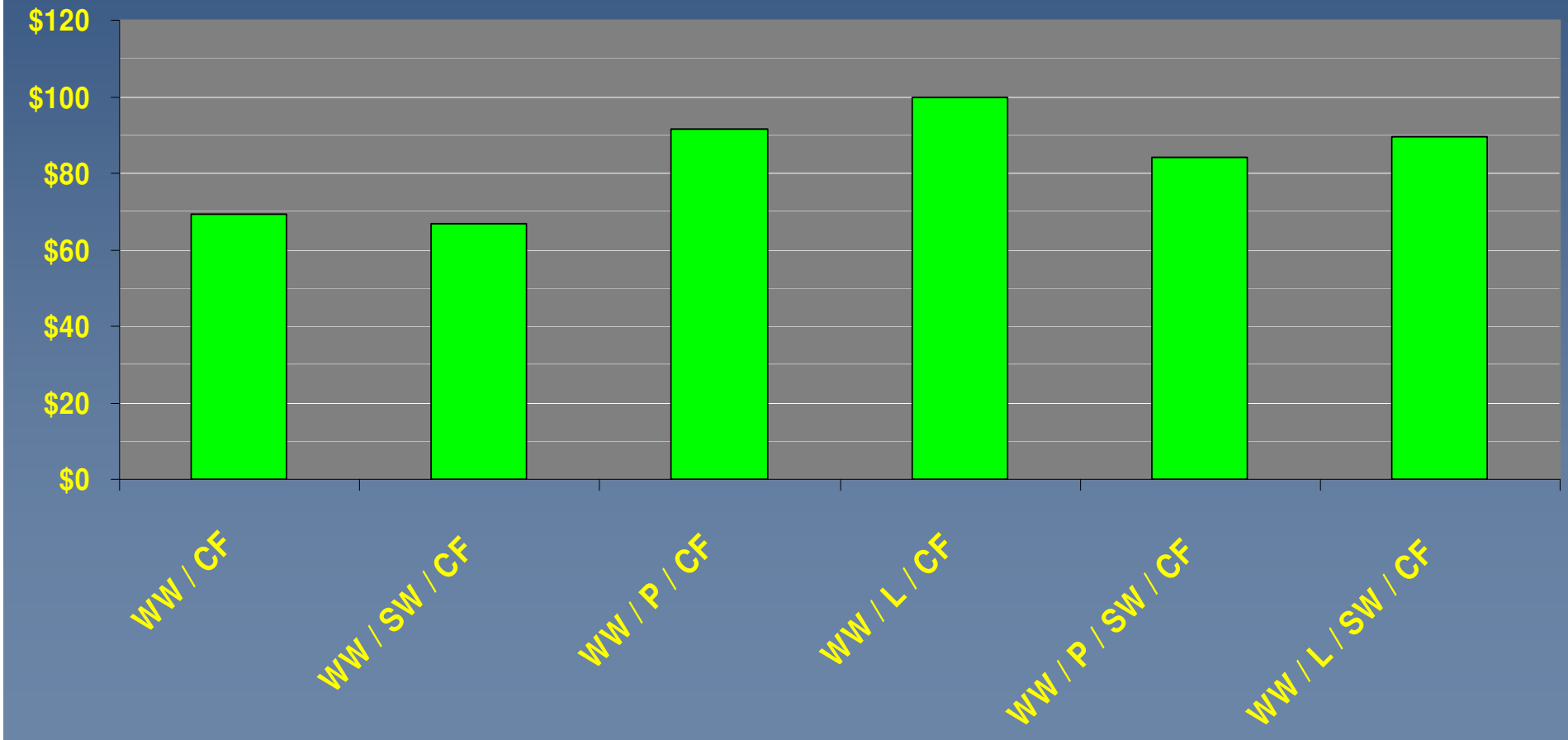
ROTATION COMPARISONS – 2006 (Regional Average Yields 2004 – 2008)



PULSE CROP ECONOMICS

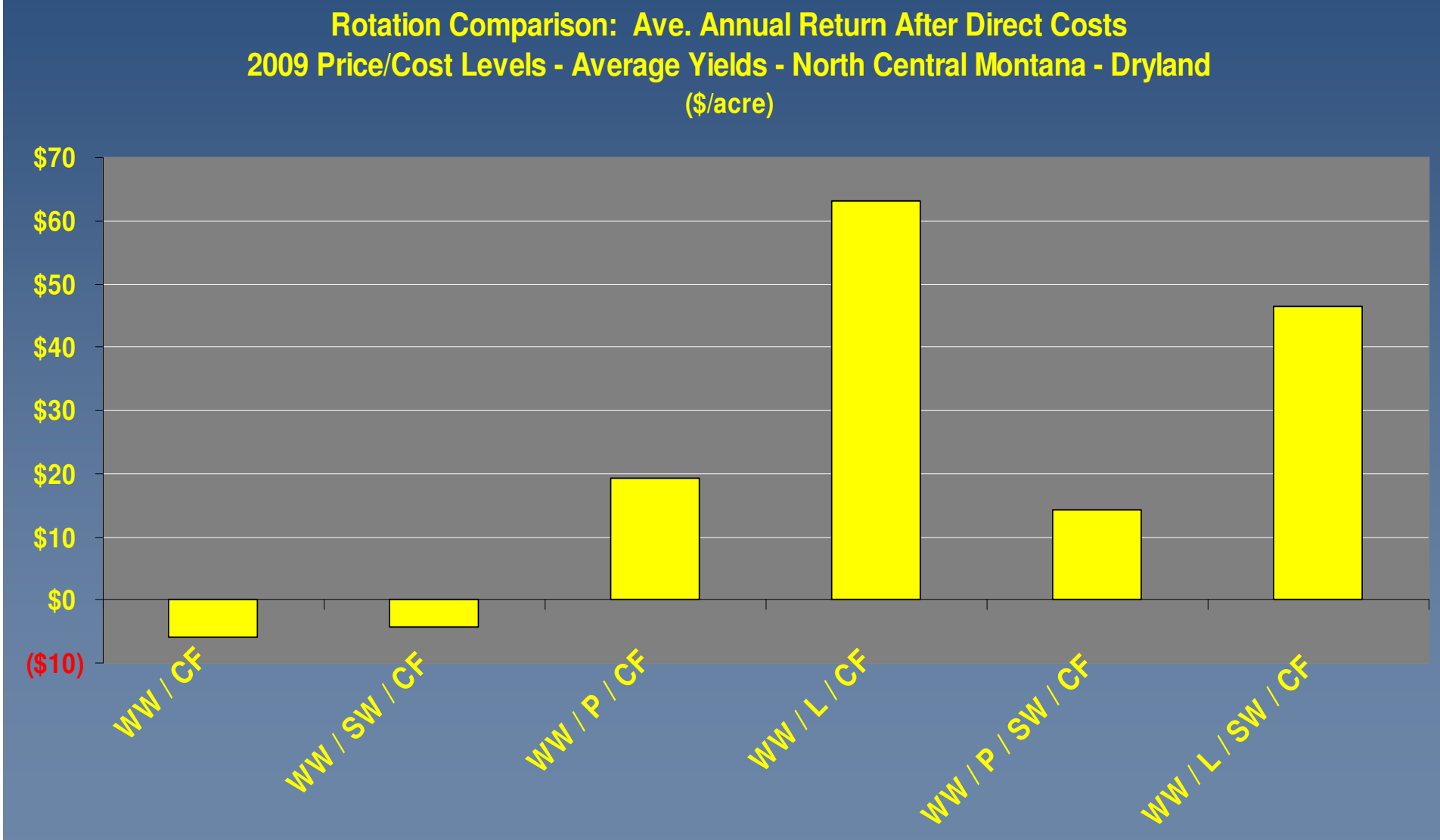
ROTATION COMPARISONS – 2007 (Regional Average Yields 2004 – 2008)

Rotation Comparison: Ave. Annual Return After Direct Costs
2007 Price/Cost Levels - Average Yields - North Central Montana - Dryland
($/acre)



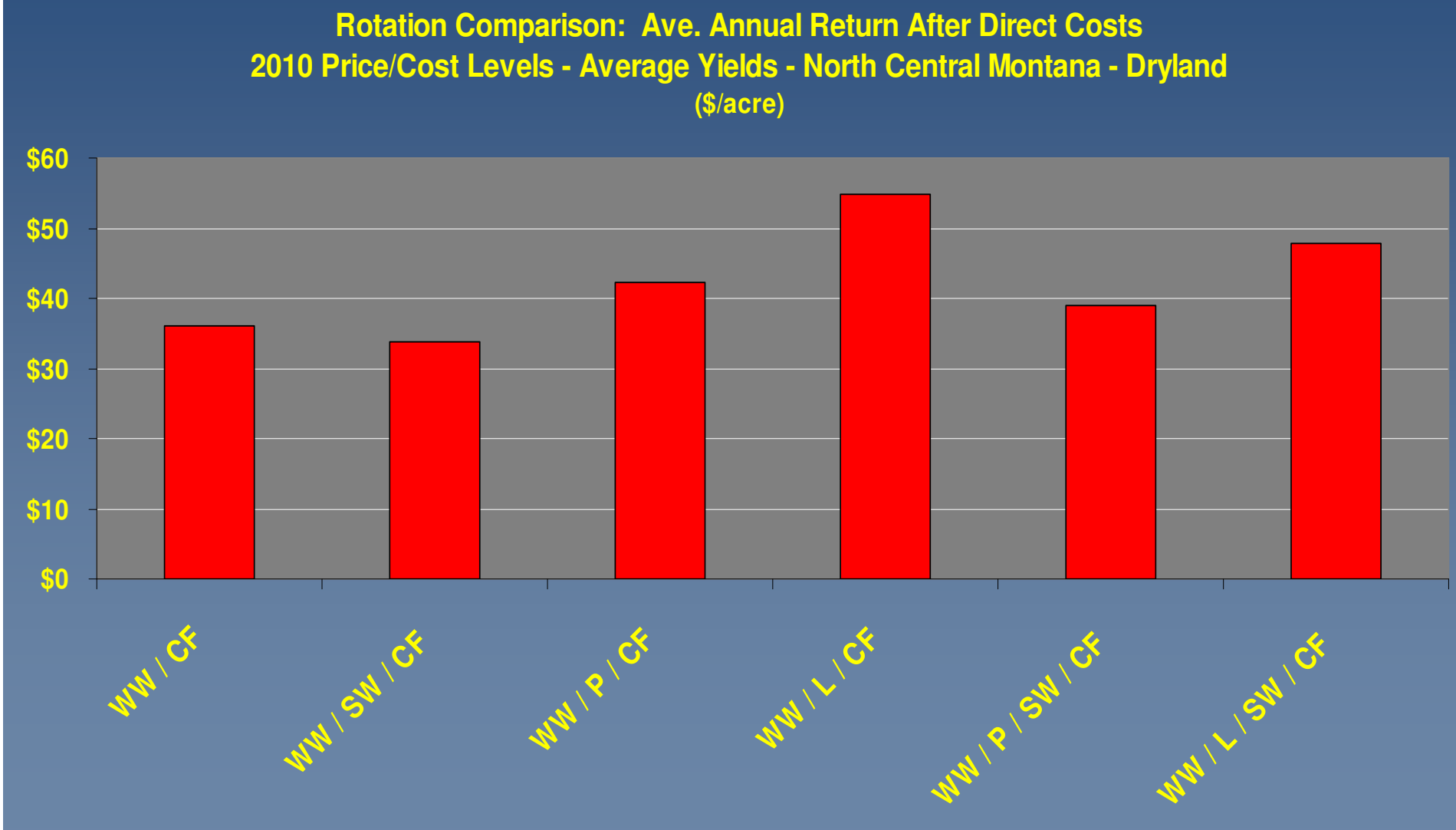
PULSE CROP ECONOMICS

ROTATION COMPARISONS – 2009 (Regional Average Yields 2004 – 2008)

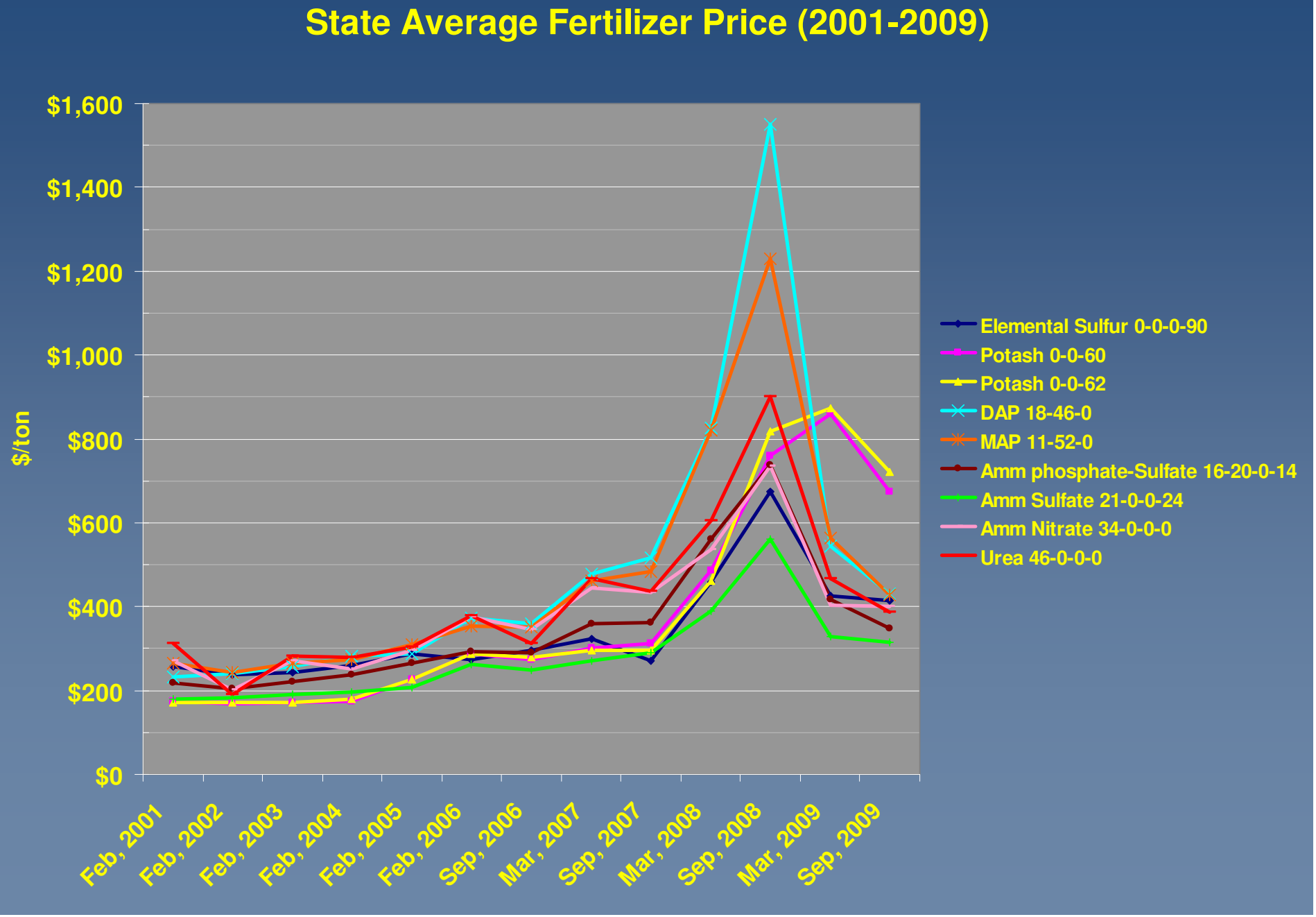


PULSE CROP ECONOMICS

ROTATION COMPARISONS – 2010 (Regional Average Yields 2004 – 2008)



The role of fertilizer in the year-to-year comparisons:



PULSE CROP ECONOMICS

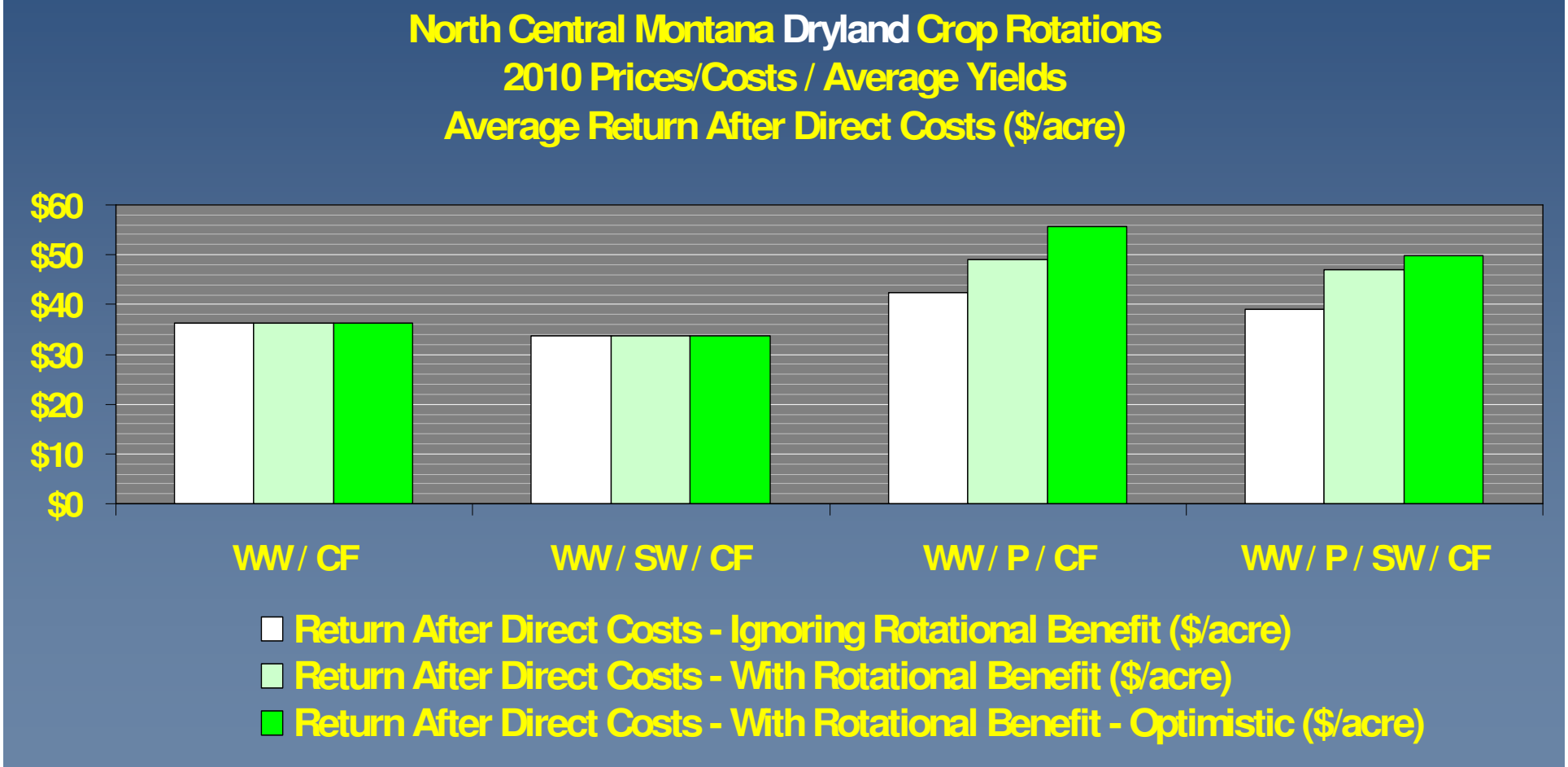
Estimated average returns of rotations did not incorporate rotational benefits:

- **Yield Enhancement**
- **Quality Improvement**

WHAT IF THEY DID?

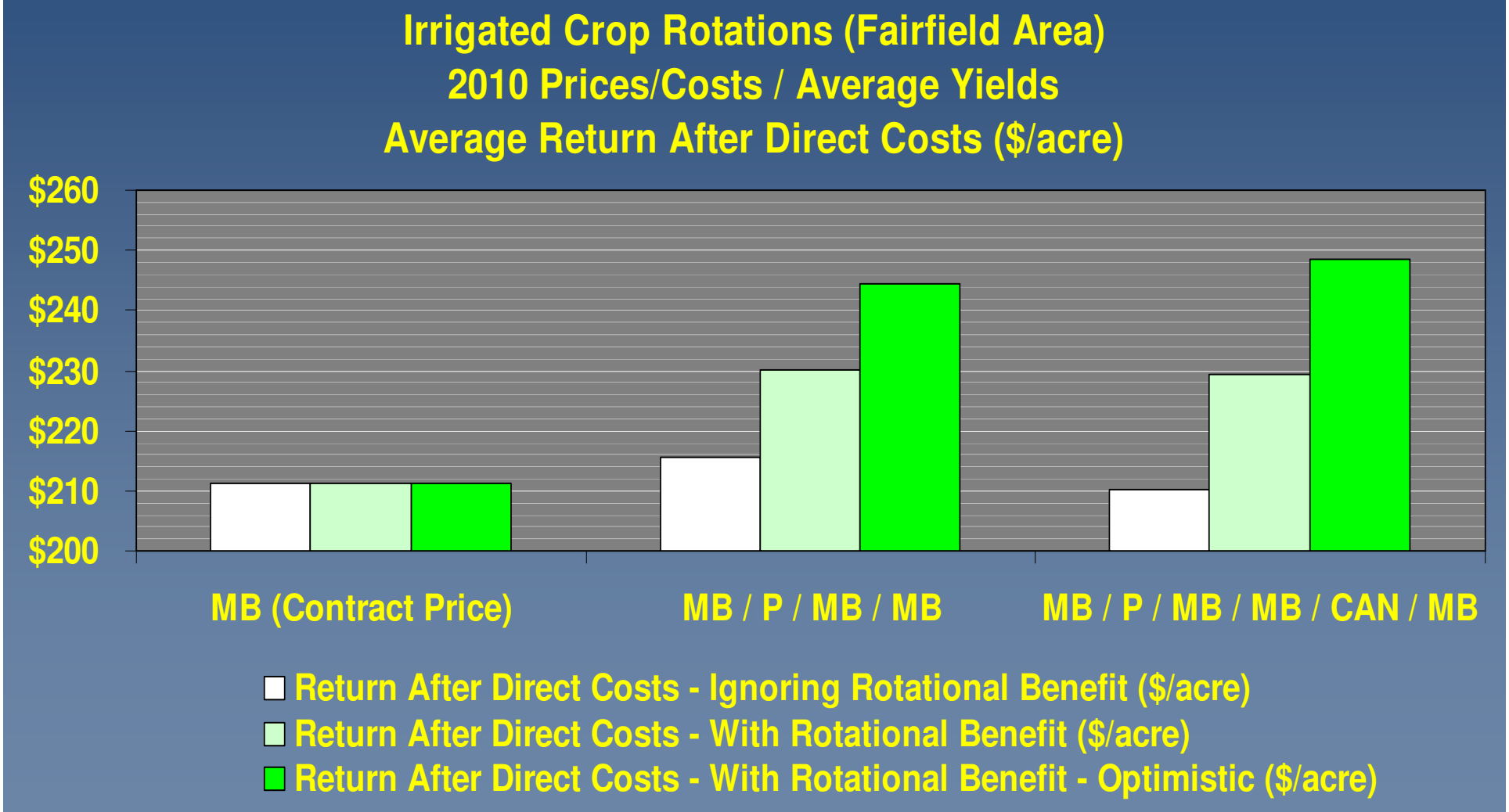
PULSE CROP ECONOMICS

ROTATION COMPARISONS – SHOWING ROTATION BENEFITS (YIELD)



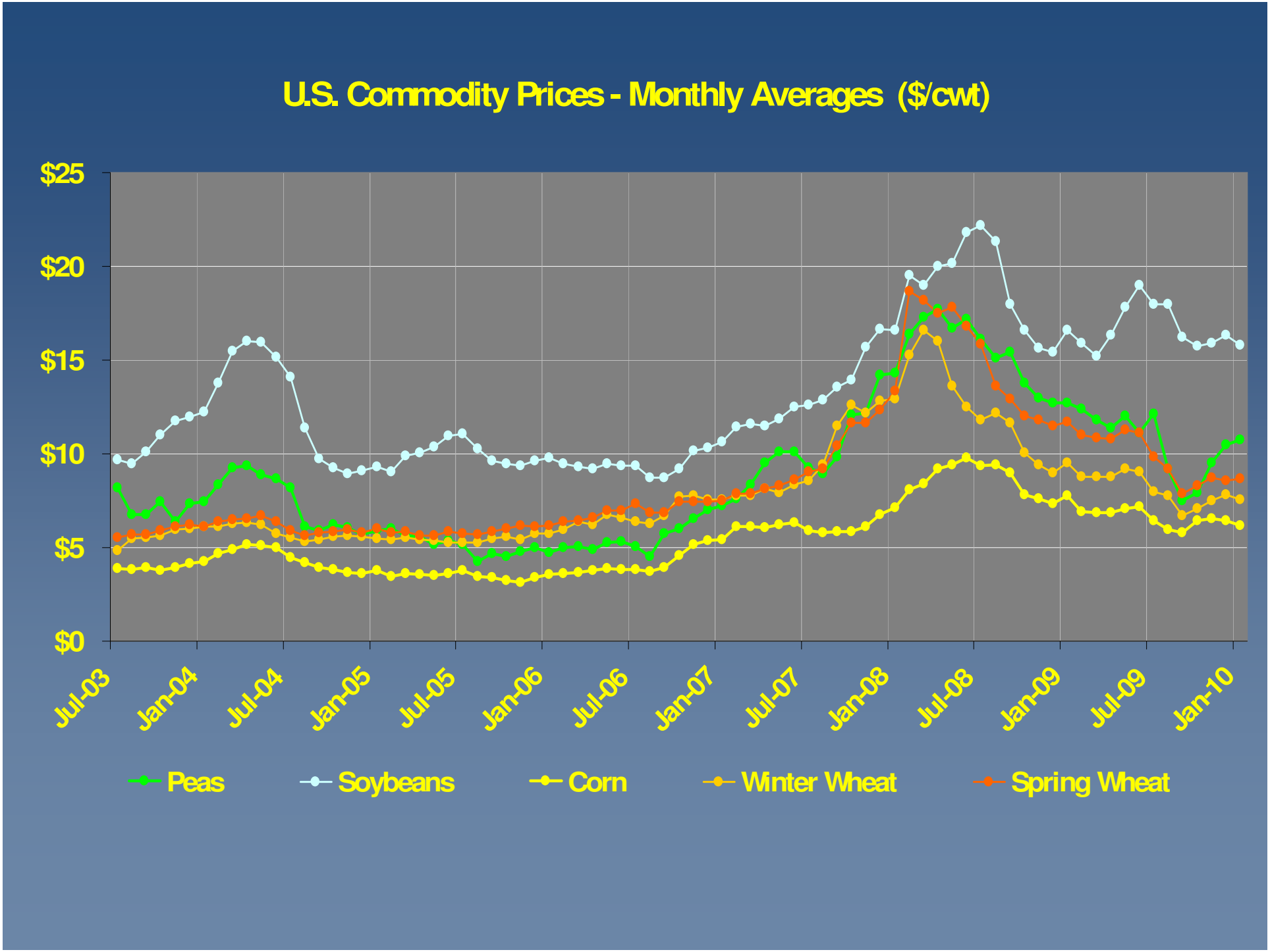
PULSE CROP ECONOMICS

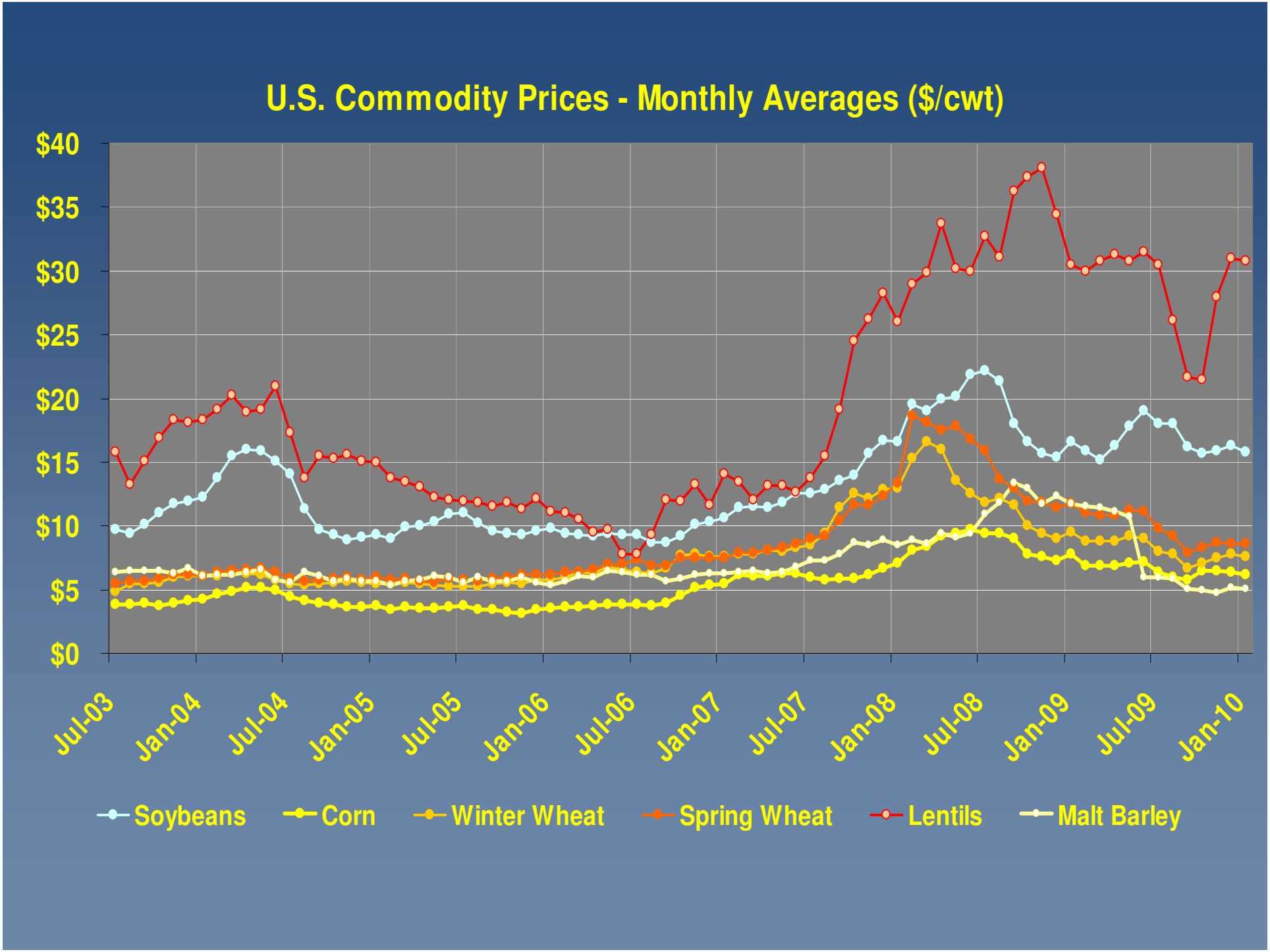
ROTATION COMPARISONS – SHOWING ROTATION BENEFITS (YIELD)

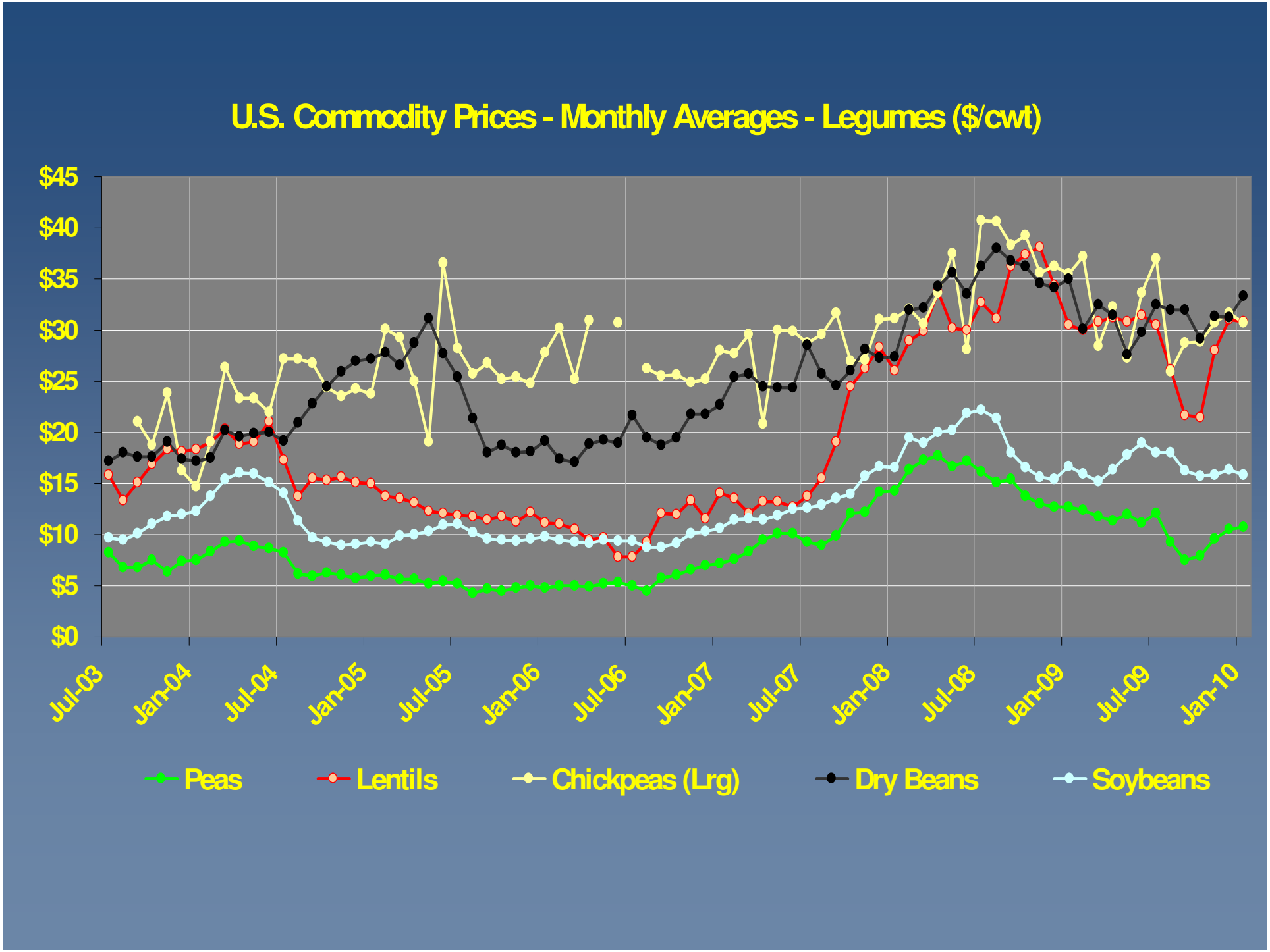


PULSE CROP PRICE TRENDS

Comparison With Other Crops


U.S. Commodity Prices - Monthly Averages ($/cwt)
$25
$20
$15
$10
$5
$0
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Peas
Soybeans
Corn
Winter Wheat
Spring Wheat


U.S. Commodity Prices - Monthly Averages ($/cwt)
$40
$35
$30
$25
$20
$15
$10
$5
$0
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Soybeans
Corn
Winter Wheat
Spring Wheat
Lentils
Malt Barley

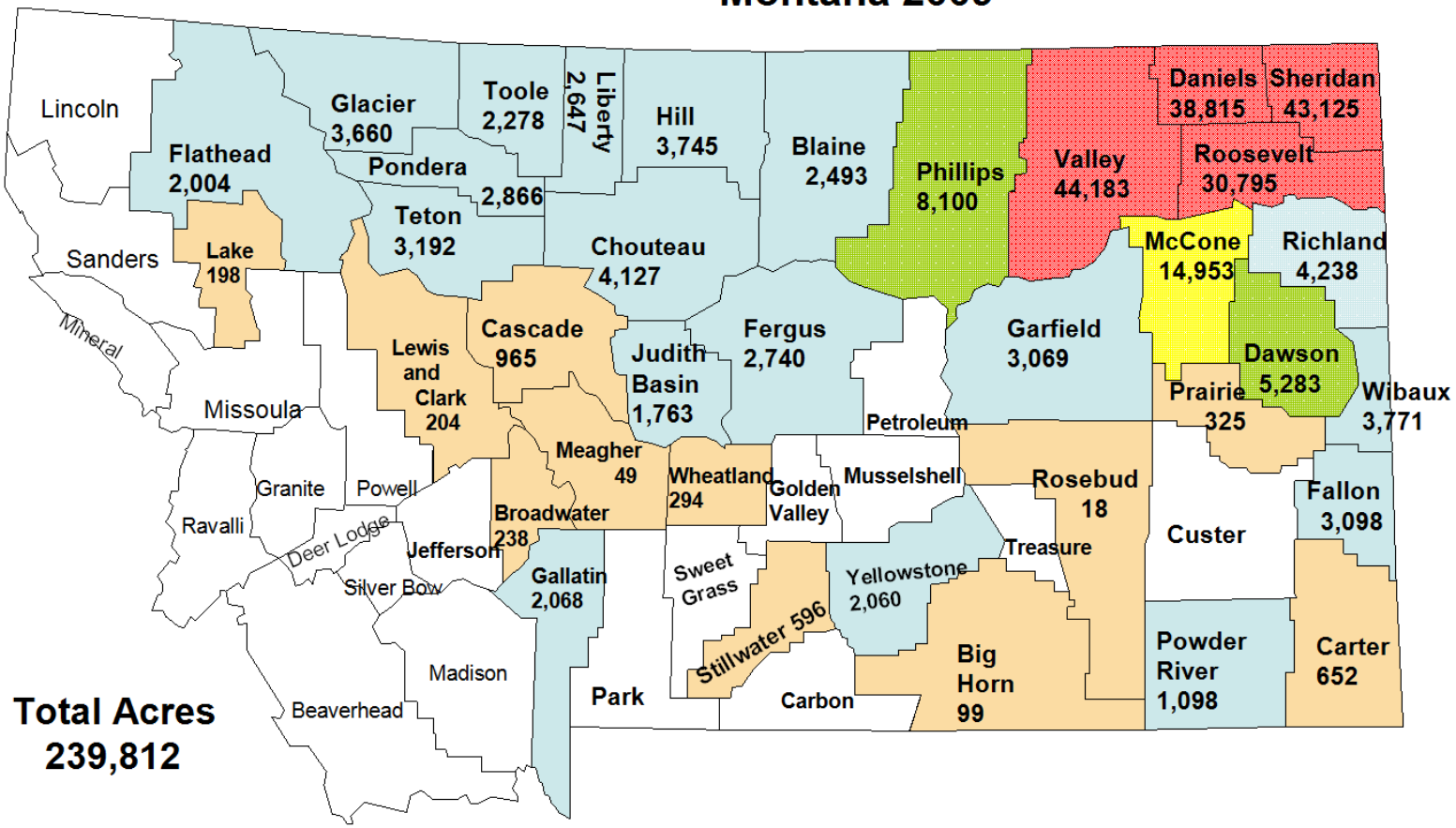

U.S. Commodity Prices - Monthly Averages - Legumes ($/cwt)
$45
$40
$35
$30
$25
$20
$15
$10
$5
$0
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Peas
Lentils
Chickpeas (Lrg)
Dry Beans
Soybeans

MONTANA PULSE PRODUCTION

2009

Compiled by: Chet Hill,
NDSU Extension Service

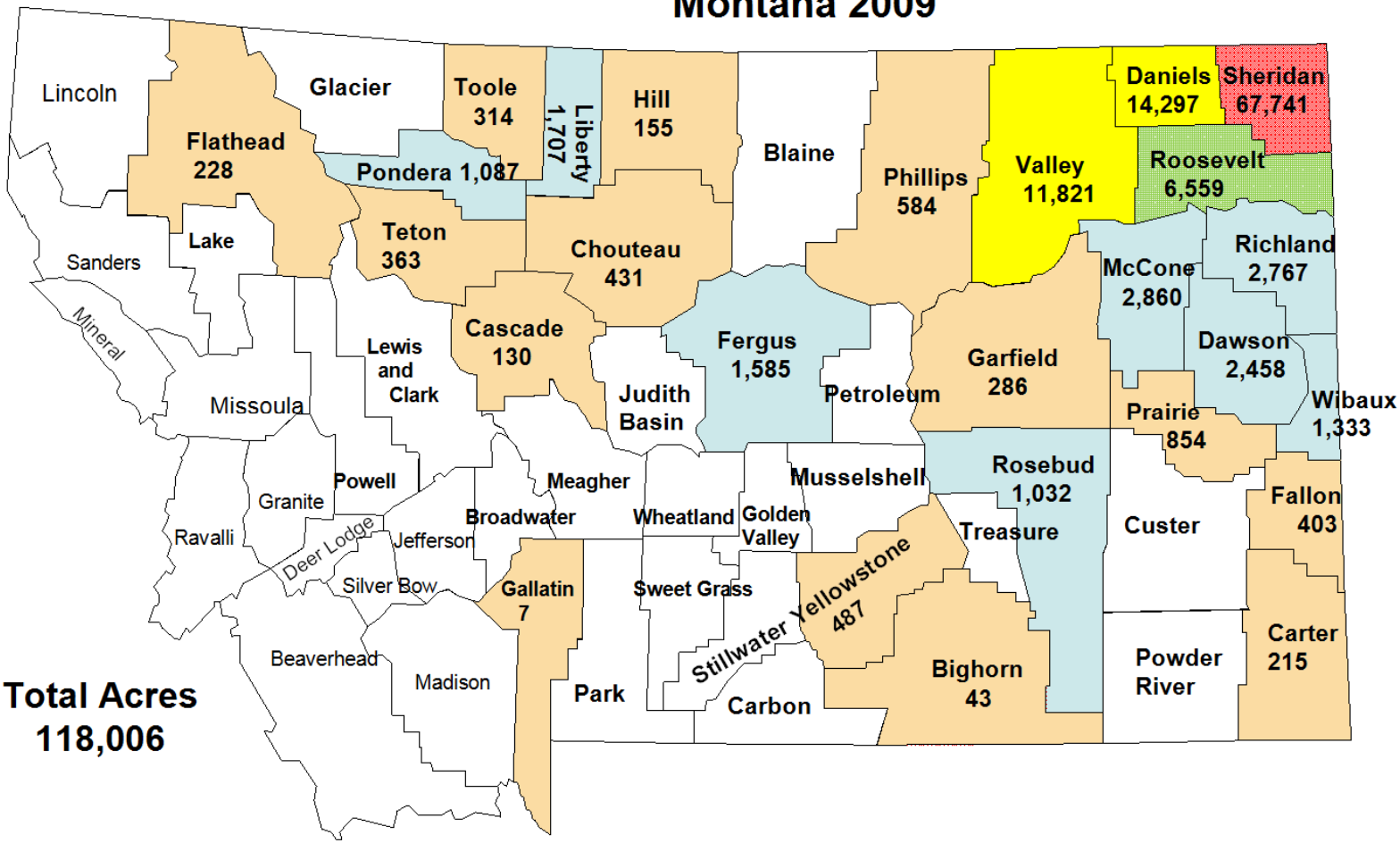
Field Pea Planted Acres
Montana 2009



Source: MT FSA

Compiled by: Chet Hill,
NDSU Extension Service

Lentils Planted Acres
Montana 2009



Source: MT FSA

WORLD PULSE PRODUCTION

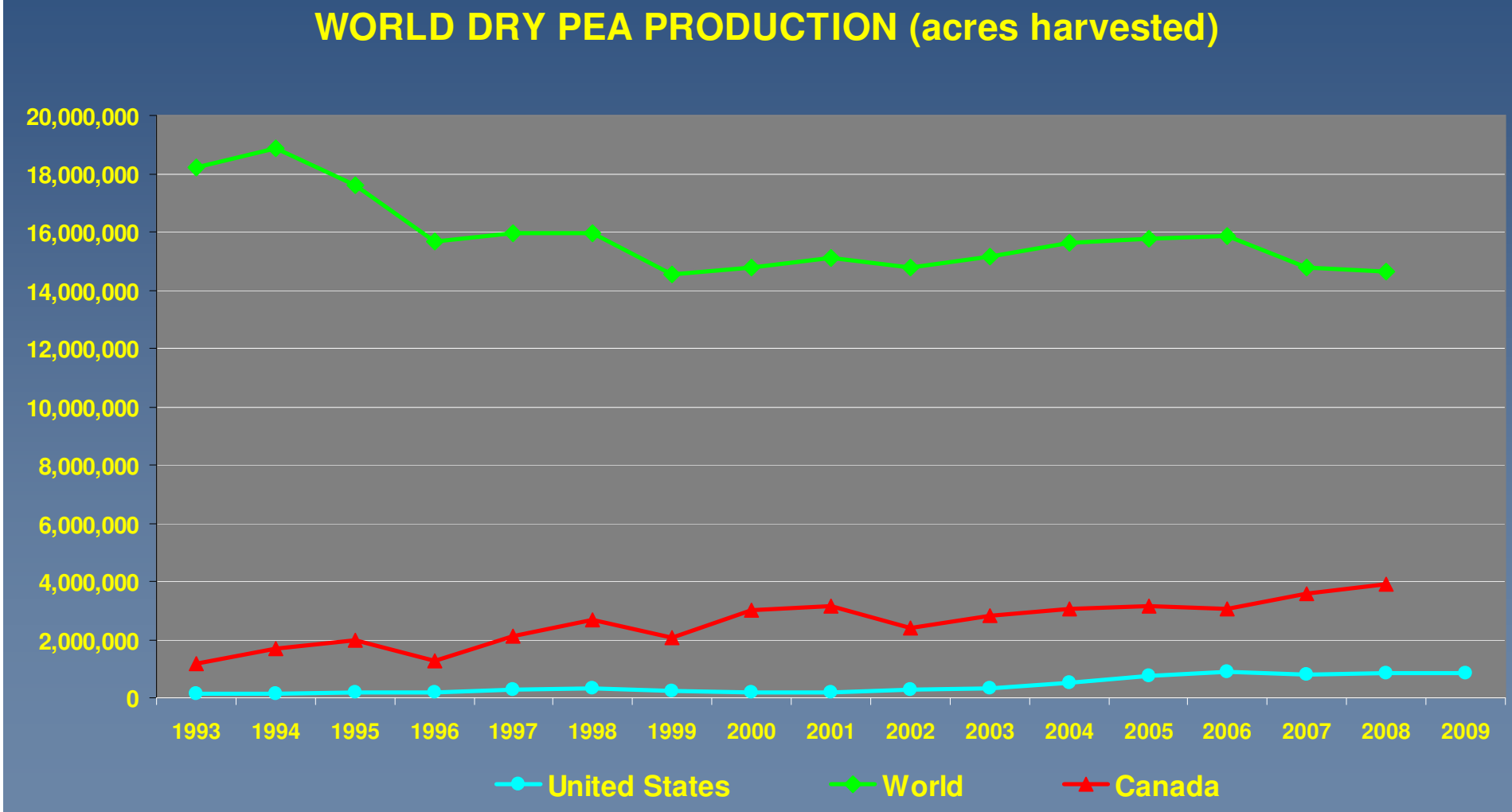
Acres & Volume

+

U.S. & Canada Share

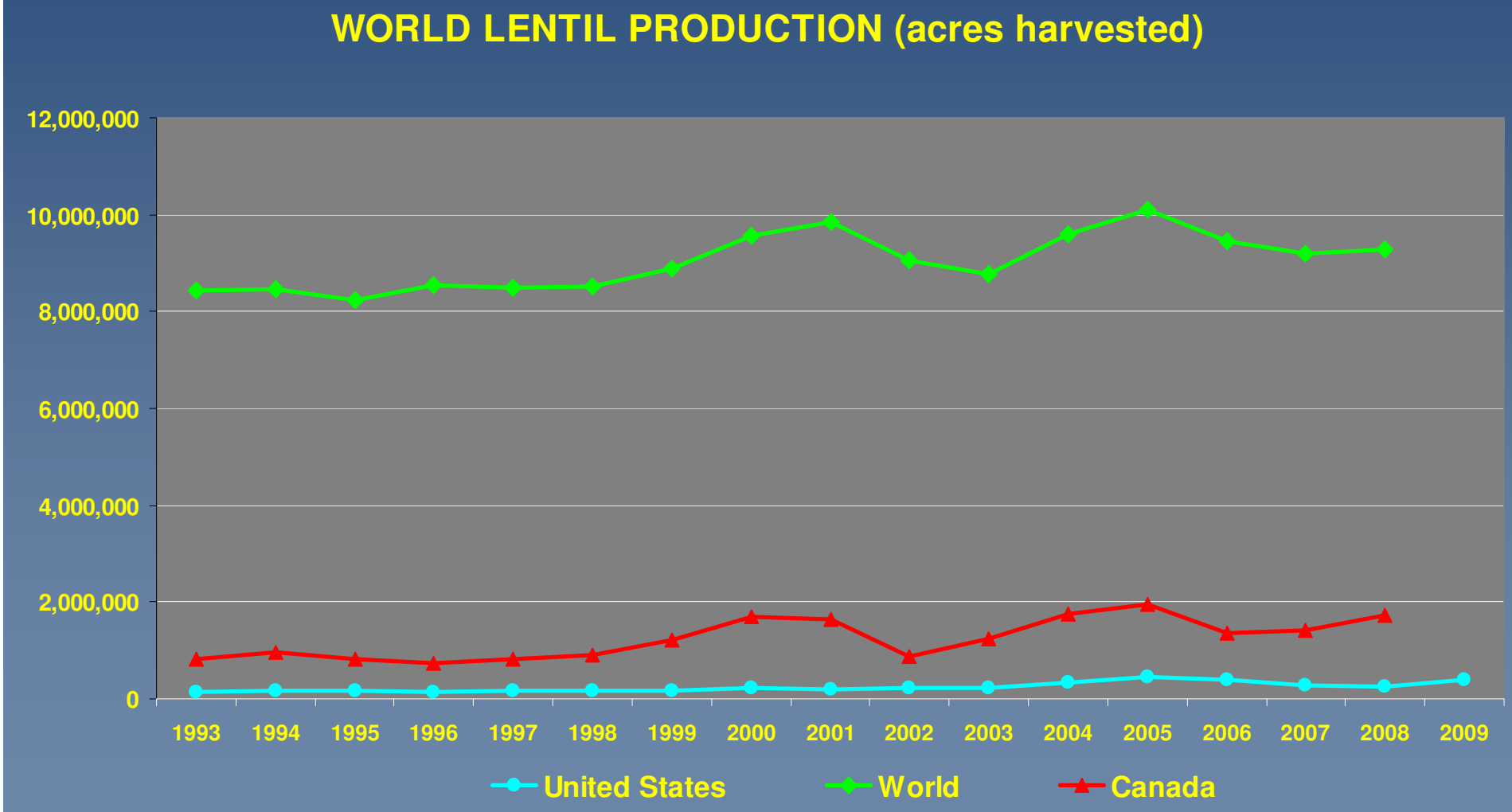
PULSE CROP ECONOMICS

DRY PEA PRODUCTION TRENDS (1993 – 2009)



PULSE CROP ECONOMICS

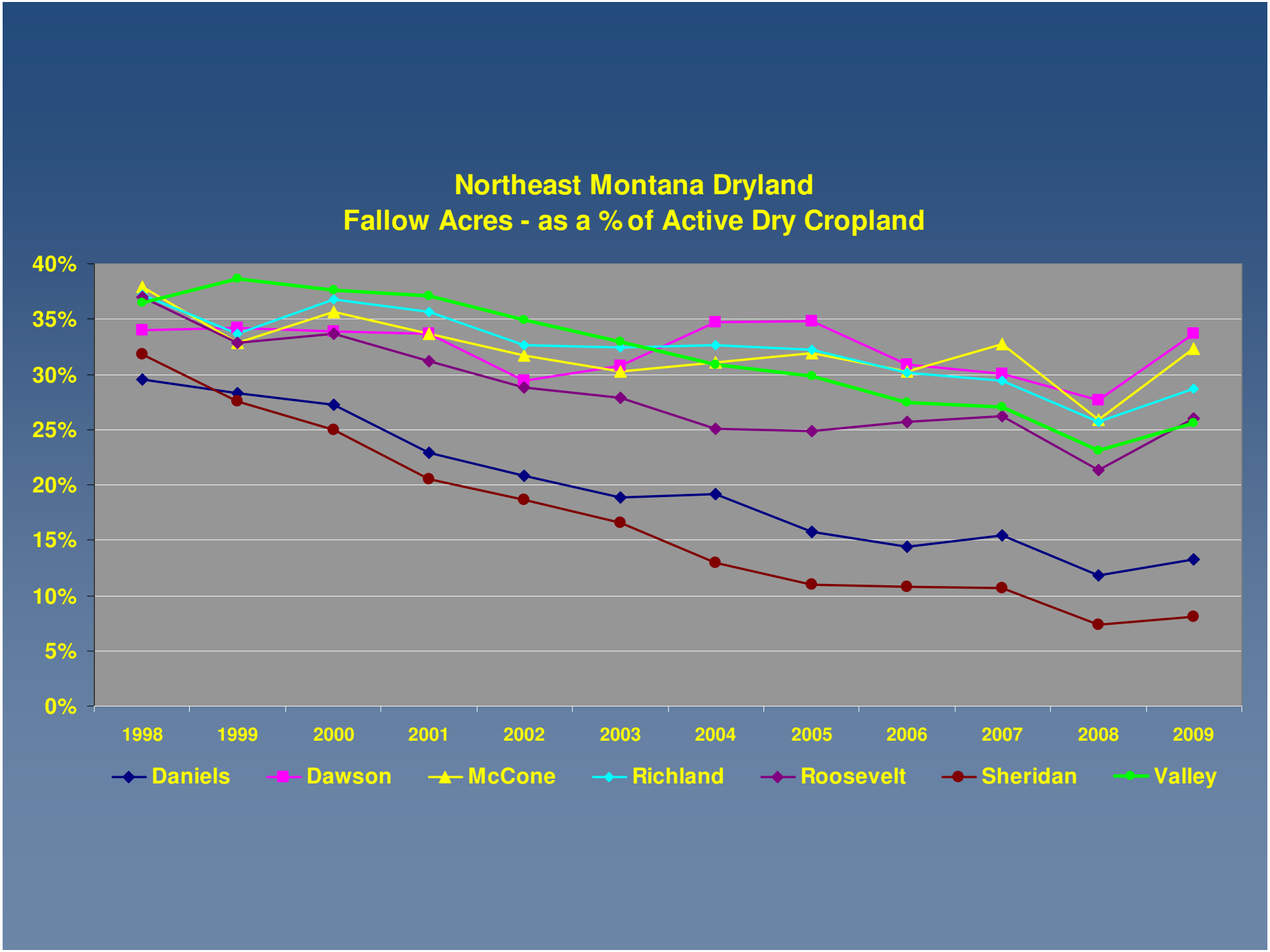
LENTIL PRODUCTION TRENDS (1993 – 2009)

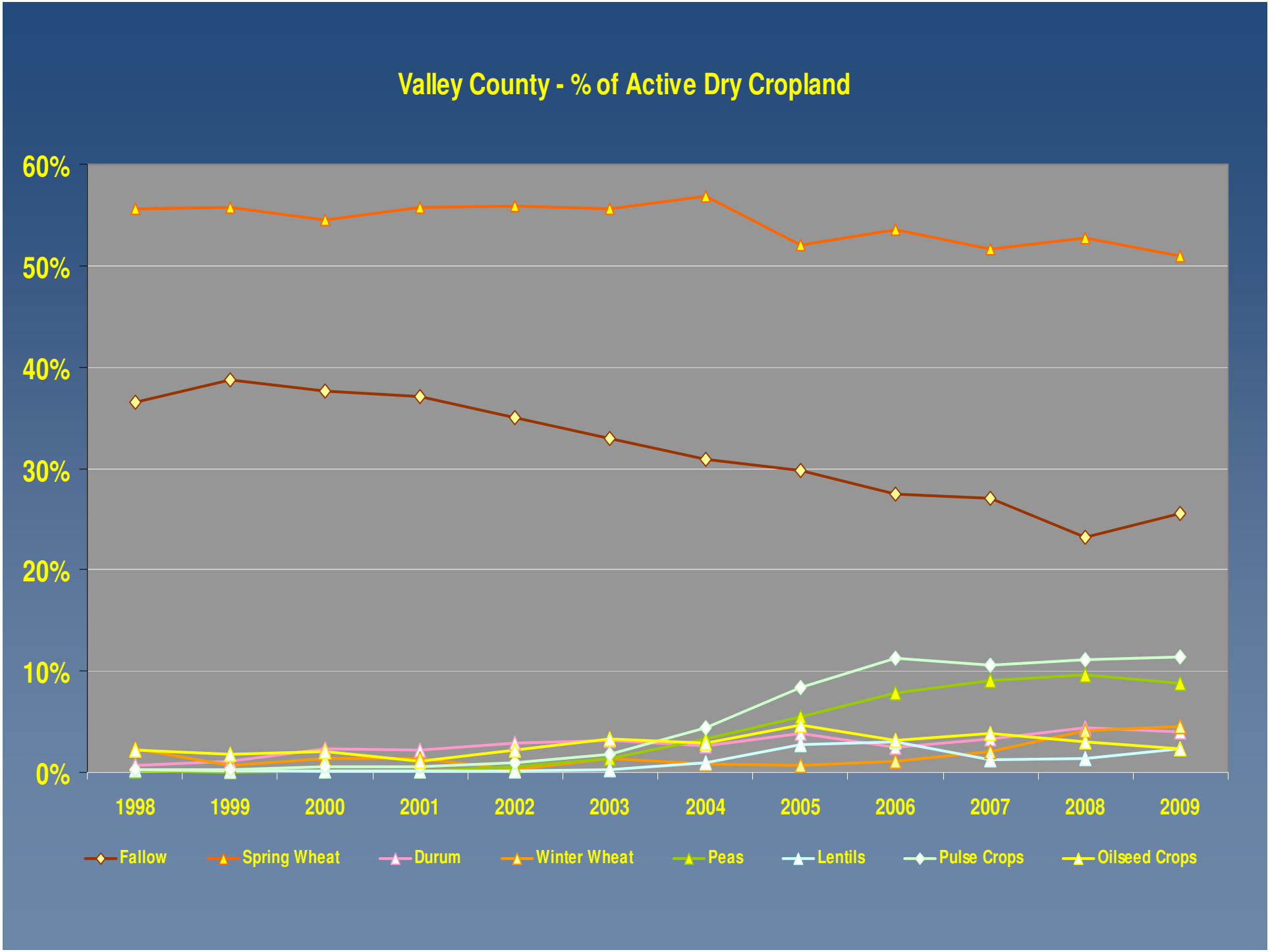


ACREAGE TRENDS IN NORTHEAST MONTANA

1998 - 2009

Pulse Crop Impact on Fallow & Wheat Acres


Northeast Montana Dryland
Fallow Acres - as a % of Active Dry Cropland
40%
35%
30%
25%
20%
15%
10%
5%
0%
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Daniels
Dawson
McCone
Richland
Roosevelt
Sheridan
Valley


Valley County - % of Active Dry Cropland
60%
50%
40%
30%
20%
10%
0%
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Fallow
Spring Wheat
Durum
Winter Wheat
Peas
Lentils
Pulse Crops
Oilseed Crops

Valley County Dry Cropland
Change Since 1998 (acres)

PULSE CROP ECONOMICS

TERMS TO WATCH FOR IN PRODUCTION CONTRACTS

- Act of God Clause
- Price Guarantee - on how much (lbs/acre)?
- First / Last Refusal - Purchase Guarantee
- Storage Payments
- Delivery – Time / Location / Latest Date
- Specifications
- Timing of Payment(s)

CONCLUSIONS

<u>Peas & Lentils</u> have offered competitive potential returns in the recent past – appear to be competitive in 2010

- Supported by a large global market
- Not traded on any exchanges
- Complimentary to cereal rotations

Do your homework on understanding:

- **Issues with Growing the Crop**
- **Production Economics**
- **The Market & the Players**

Risk Management:

- **Does not mean eliminating all of your risks**
- **Means understanding your risks – upside and downside**
- **Taking no action also carries risk**

DISCLAIMER

The economic returns presented are estimates, not fact.

Make estimates that are applicable to your:

- **farm,**
- **yield history,**
- **growing conditions, and**
- **your perception of risk.**

To Discuss More, Contact:

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Department of
AGRICULTURE